

## LACROSSE GOALIE STICK HEAD

### CROSS REFERENCE TO RELATED APPLICATION

**[0001]** The present invention claims priority from co-pending U.S. Provisional Application Serial No. 60/197,720 filed April 18, 2000 and entitled "LACROSSE GOALIE STICK".

### TECHNICAL FIELD

**[0002]** The present invention relates generally to a lacrosse goalie stick head and, more particularly, to a lacrosse goalie stick head that allows for improved deflection and controlling of a lacrosse ball.

### BACKGROUND OF THE INVENTION

**[0003]** Lacrosse goalie stick heads are well known in the game of lacrosse. Lacrosse goalie stick heads are used by goalies and are larger than the heads used by other players to assist in keeping the lacrosse ball out of the net the goalie is protecting. Current lacrosse goalie stick head designs typically take the form of an open frame having a top traverse wall, a base with a concave interior surface that defines a ball rest, and a pair of sidewalls that diverge from the base to the top traverse wall. The top traverse wall, the base, and the sidewalls are integrally formed into a unitary solid body or head frame. The base is integrally formed with a throat portion. The throat portion has a female end

socket formed therein for receiving a conventional stick handle.

**[0004]** The head, base, and/or throat portion of current lacrosse goalie stick heads have holes therein for stringing lace therethrough to form netting on a backside of the head frame, as is known to one skilled in the art. A front side of the head frame has an open area to receive a lacrosse ball therein. The female end socket and the throat portion define a handle/head axis, which typically although not necessarily forms the central axis and/or an axis of lateral symmetry of the head. The central axis defines a plane through the center of the head. The plane lies parallel to the centerline of the lacrosse stick.

**[0005]** The sidewalls of current lacrosse goalie stick heads lie generally perpendicular to the axis and have a stiffening rib formed in the sidewalls to provide the requisite strength. The rib is typically formed at about the midpoint of the sidewall and only extends slightly outwardly from the sidewall. Additionally, some lacrosse goalie sticks have sidewalls that are angled slightly outward in an attempt to facilitate entry of the lacrosse ball into the head. Current non-goalie lacrosse heads are similar in configuration to current lacrosse goalie stick heads. The stiffening ribs of some non-goalie lacrosse heads also extend slightly outwardly from the plane of the lacrosse ball, however, they similarly are not intended to deflect or otherwise contact a lacrosse ball.

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**[0006]** A lacrosse goalie in his/her role as defender of a lacrosse goal, has two main purposes, one is to prevent incoming lacrosse balls from entering the goal by catching and controlling them, and two, to deflect incoming balls that are not caught and prevent them from entering the goal. It would therefore be desirable to provide improvements to the goalie's lacrosse head that would increase the goalie's ability to successfully deflect or control the incoming lacrosse balls.

#### SUMMARY OF THE INVENTION

**[0007]** It is therefore an advantage of the present invention to provide a lacrosse goalie stick head that is configured to have a wider deflection area than traditional goalie heads thereby assisting a lacrosse goaltender in the deflection of lacrosse balls away from a goal.

**[0008]** It is a further advantage of the present invention to provide a lacrosse goalie stick head with the ability to assist a lacrosse goalie in the control of and guiding of a lacrosse ball into the open area of a head frame where it will be retained in the netting of the lacrosse goalie stick head.

**[0009]** It is another advantage of the present invention to provide a lacrosse goalie stick head with increased strength over conventional lacrosse goalie stick heads.

**[0010]** It is yet another advantage of the present invention to provide a lacrosse goalie stick head with

increased surface area over current heads to improve the ability to block a lacrosse ball.

**[0011]** It is still another object of the present invention to provide a throat portion that can be easily gripped to allow a goalie to have more control over the cradling, catching, and passing of a lacrosse ball.

**[0012]** Accordingly, in accordance with the above and the other advantages of the present invention, a lacrosse goalie stick head is provided. The lacrosse goalie stick head has a traverse top wall, a first sidewall, a second sidewall opposing the first sidewall, and a base portion. The first sidewall and the second sidewall extend from the base portion and diverge from each other and are connected opposite the base portion to the traverse top wall. The traverse top wall, the first sidewall, the second sidewall, and the arcuate wall together form a head frame element. The base has a throat portion with a female end socket formed therein, which provides for attachment to a lacrosse stick handle. The head frame element and the base form the lacrosse goalie stick head. The lacrosse goalie stick head has a lateral center plane, spanning across the open area defined by the base. The sidewall adjacent the scoop lies at a slight forward angle with respect to the plane or the centerline of the throat portion. The first sidewall and the second sidewall have a flange that extends outwardly therefrom. The flanges are angled upwardly from their respective sidewalls to funnel deflected balls into the open area or deflect them away from a lacrosse goal.

**[0013]** These and other features and advantages of the present invention will become apparent from the following description of the invention, when viewed in accordance with the accompanying drawings and appended claims.

#### **BRIEF DESCRIPTION OF THE DRAWING**

**[0014]** Figure 1 is a top perspective view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention;

**[0015]** Figure 2 is a bottom perspective view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention;

**[0016]** Figure 3 is a top view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention;

**[0017]** Figure 4 is a side view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention;

**[0018]** Figure 5 is a front view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention; and

**[0019]** Figure 6 is a rear view of a lacrosse goalie stick head in accordance with a preferred embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[0020]** Referring now to the figures which illustrate a lacrosse goalie stick head 10 in accordance with the present invention. The lacrosse goalie stick head 10 is preferably formed using an injection molding process, however, other processes such as structural foam molding or the like may also be utilized. The lacrosse goalie stick head 10 is preferably formed from a plastic material, however, other materials such as urethane, nylon, polyvinyl chloride, polyester, or a combination thereof may also be utilized.

**[0021]** Various directional terms, such as "top", "bottom", "upper", "lower", "outer", "forwardly", "inwardly", and "rear" are used herein to describe the head as illustrated in the drawings. However, it should be understood that these directional terms are not intended to be limiting and are only used for purposes of illustration.

**[0022]** As shown, the lacrosse goalie stick head 10 has a rear arcuate wall 12, a first sidewall 14, and a second sidewall 16 generally opposing the first sidewall 14. The first sidewall 14 and the second sidewall 16 each extend generally forwardly from the rear arcuate wall 12 and generally diverge from each other. The first sidewall 14 and the second sidewall 16 terminate at a top transverse wall or scoop 18. The rear accurate wall 12, the first sidewall 14, the second sidewall 16, and the scoop 18 together define a frame element 20. The upper portion or upper rim 21 of the frame element 20 defines

an open area 22 into which a lacrosse ball can be received.

**[0023]** The frame element 20 has a throat portion 24 extending rearwardly therefrom. The throat portion 24 has a socket 26 formed therein for attachment to a lacrosse stick 25. The frame element 20 and the throat portion 24 are preferably integrally formed to define the lacrosse goalie stick head 10. The lacrosse goalie stick head 10 has a lateral plane P, spanning generally across the open area 22. The plane P is defined by an upper surface of the base 12 and extends across the frame element 20 to the scoop 18. The plane P is preferably oriented parallel to the centerline 28a of the throat portion 24 and the upper rims of the sidewalls 14, 16 curve such that they are forward of the plane P forwardly of the midpoint and preferably adjacent the scoop 18. This allows the lacrosse ball to be easily picked up by the goalie and also be passed with increased velocity over conventional heads.

**[0024]** The throat portion 24 is configured to allow a goalie to grip the throat portion 24 and maintain a firm grip without slipping. Specifically, the throat portion 24 has a pair of indentations or recesses 27 located on either side of the throat portion 24 to receive one or more of a goalie's fingers therein. Additionally, the most rearward end 33 of the throat portion 24 is enlarged or has an enlarged radius with respect to the rest of the throat portion 24 to help retain the user's hand thereon. This rearward end 33 can also be referred to as a butt end. By improving the goalie's grip, his/her ability to cradle is also improved.

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**[0025]** The top traverse wall 18 is preferably outward sloping from its lower surface 29 to its upper surface 31 and is "scoop" or "shovel" shaped in order to assist in retrieving ground balls. A ridge 30 is formed as part of the outer side 32 of the scoop 18 to provide structural strength. The ridge 30 separates an upper portion 34 from a lower portion 36 of the top traverse wall 18. The material thickness of the top traverse wall 18 varies between the upper portion 34 and the lower portion 36, such that the upper portion 34 is thicker than the lower portion 36. The variance in wall thickness allows the top traverse wall 18 to flex inward, assisting in the control of the lacrosse ball, particularly when scooping up ground balls or in passing or shooting the ball. The top traverse wall 18 preferably has holes 37 or other means for a netting (not shown) to be attached to the head 10 such as through stringing. The holes 37 or other attachment means are preferably formed in the lower portion 36 of the scoop 18.

**[0026]** The first sidewall 14 and the second sidewall 16 have a plurality of slots or openings 38 formed therein, with trusses separating the slots 38. The plurality slots 38 may be of varying sizes and shapes, and may be formed in an injection molding process, a machining process, a drilling process, or a similar process as is known in the art. The plurality of openings 38 reduce the overall weight of the lacrosse goalie stick head 10. The overall weight of the head 10 can be varied simply by changing the size of the openings 38. The plurality of openings 38 also reduce the amount of air resistance or drag that will act on the lacrosse



goalie stick head 10 as it is accelerating or mounting during use. One of the attributes that the reduction in weight and air resistance provides is improved user playability, such as increased shot speed and accuracy.

**[0027]** The first sidewall 14 and the second sidewall 16 each preferably have an outwardly extending flange 40, 42 that extends outwardly from each sidewall 14, 16. The extending flanges 40, 42 are preferably integrally formed with the frame element 20, and more preferably are integrally formed with a respective sidewall 14, 16. Each of the flanges 40, 42 has an inner peripheral edge 44 and an outer peripheral edge 46. The flanges 40, 42 extend between the inner peripheral edges 44 and the outer peripheral edges 46. The outer peripheral edges 46 preferably run at an angle with respect to the sidewalls 14, 16. It should be understood that the outer peripheral edges 46 as they travel towards the scoop 18 may converge towards or diverge away from each other. However, the outer peripheral edges 46 are preferably parallel to one another and terminate at one end at the throat portion 24 and at the other end at the scoop 18. The flanges 40, 42 preferably taper in width as they extend from the base 12 to the scoop 18 such that the outer periphery of the head 10 is generally rectangular in shape. The outer periphery of the head may take on a variety of different shapes.

**[0028]** The flanges 40, 42 preferably angle upwardly such that the outer edge 46 is raised with respect to the inner edge 44. The flanges 40, 42 may be curved or planar or take on a variety of other configurations between the outer edge 46 and the inner edge 44.

Preferably, flanges 40, 42 are banked as they extend from one end to the other with the largest radius of curvature being generally in the middle. Further, the inner edge 44 of each flange 40, 42 preferably contacts the respective upper half of each sidewall 14, 16. More preferably each flange 40, 42 contacts its respective sidewall 12, 14 at or about its upper edge 48, 50. This configuration allows the flanges 40, 42 to assist in the guiding of a lacrosse ball into the open area 22 of the head frame 20. The upper portion 51, 53 of each sidewall 14, 16 is preferably generally sloped adjacent the inner edge 44 to provide additional slope to guide the ball into the open area 22 and the netting.

**[0029]** Additionally, the flanges 40, 42 are intended to deflect or block a lacrosse ball that is not caught in the open frame 22 and this prevents them from entering a lacrosse goal (not shown), without directing the ball into the open frame 20. The flanges 40, 42 are configured such that the blocking area of the head 10 is increased. This is because the flanges 40, 42 significantly increase the contact area of the head with contact area being comprised of the open area 22, the frame element 20, and the flanges 40, 42. Although a constructed embodiment of the invention describes only two extending flanges, a plurality of extending flanges may be incorporated into the lacrosse goalie stick head 10 in various locations having various sizes, shapes, and configurations. The flanges 40, 42 also provide increased strength, rigidity, and stiffness to the frame element 20. The sizes of the flanges 40, 42 are not critical however, they must be sufficient in size to guide a ball into the open area and/or deflect a ball outwardly.

**[0030]** The first sidewall 14 and the second sidewall 16 further have a plurality of stiffening ribs 48, 50 formed thereon. Each of the ribs 48, 50 preferably extend outwardly from one or more of the trusses formed in each of the first and second sidewalls 14, 16 respectively and lie on the under surface 52, 54 of the respective flanges 40, 42. The plurality of ribs 48, 50 are preferably angled rearwardly towards the throat portion 24 and are tapered inwardly towards the open area 22 from its upper portion 61 to its lower portion 63. The plurality of ribs 48, 50 may be formed as mentioned above using an injection molding process or other suitable process. The plurality of ribs 48, 50 strengthen and provide increased stiffness and rigidity to the sidewalls 14, 16 and the flanges 40, 42. The plurality of ribs 48, 50 help support the respective flanges 40, 42. Additionally, the upper surface of each flange 40, 42 preferably has a depression formed adjacent the upper portion of each of the plurality of ribs 48, 50.

**[0031]** The outer surfaces 56, 58 of the first sidewall 14 and the second sidewall 16 each have a ridge 60 formed therein. The portion of the sidewalls 14, 16 above the ridge 60 is thicker than the portion of the sidewalls 14, 16 below the ridge 60. Further, the portion of the sidewalls 14, 16 below the ridge 60 is displaced inwardly when viewed from the outer surface 32. The ridge 60 in each sidewall 14, 16 is connected to either end of the ridge 30 formed in the scoop 18. The first sidewall 14 and the second sidewall 16 each preferably have a plurality of openings 62 formed therein to allow

attachment of a netting thereto. Alternatively, other means of connecting netting to the head may also be utilized, including slots, clips, or the like. The plurality of openings 62 or other attachment means are preferably formed in the portion of the sidewalls 14, 16 below the ridge 60.

**[0032]** The base 12 is integrally formed with the first sidewall 14 and the second sidewall 16. The flanges 40, 42 have a rearwardly extending lip portion 63 that extends generally from the base 12. The rearwardly extending lip 63 is connected at one end 64 to the first flange 40 and at the other end 66 to the second flange 42. The rearwardly extending lip 63 is bisected by the throat portion 24. In other words, the rearwardly extending lip 63 is configured such that it terminates on either side of the throat portion 24. It should be understood that the lip 63 can take on a variety of configurations.

**[0033]** The rearwardly extending lip 63 also assists in the deflection and guiding of a lacrosse ball into the open area 22 or away from the goal. The rearward lip 63 has an outer edge 68 and an inner edge 70, with the outer edge 68 being raised with respect to the inner edge 70. The rearward lip 63 may be curved or planar or take on a variety of other configurations between the outer edge 68 and the inner edge 70. The inner edge 70 is preferably attached to the base 12 at or about its upper portion. However, the inner edge 70 may be attached to the base 12 at a variety of other locations along the base 12. The outer side 74 of the base 12 has a ridge 76 formed therein. It should be understood that the rearward lip 63

is preferably integrally formed with the flanges 40, 42. The rearward lip 63 may, however, take on a variety of different configurations.

**[0034]** The throat portion 24 may also have a means of lacing the lacrosse goalie stick head netting thereto, such as openings or the like. The openings may be formed in the base 12 or other portion of the throat. The openings or other attachment means are preferably formed in the base 12 below the ridge 76.

**[0035]** The first sidewall 14, the second sidewall 16, the first flange 40, and the second flange 42 together with their rearwardly extending lip portion 63 form an inward sloping structure around the open area 22 of the lacrosse goalie stick head 10. The inward sloping structure provides for increased deflection of balls with the necessary rigidity. The present invention provides increased control for a goaltender over incoming lacrosse balls and thereby increasing the goaltender's performance in defending a lacrosse goal. The inward sloping structure is preferably connected to the top surface of the sidewalls 12, 14 and has a portion located adjacent the upper surface of the throat portion 24. The flanges 40, 42 preferably extend approximately to the midpoint of the head 10. This allows the surface area of the head, which can contact a ball to be significantly increased without significantly increasing the size of the pocket.

**[0036]** The above-described apparatus and manufacturing method, to one skilled in the art, is capable of being adapted for various purposes and is not limited to the following applications: lacrosse goalie stick heads,

lacrosse stick heads in general, and other similar heads used in other sporting activities. The above-described invention can also be varied without deviating from the true scope of the invention.

**[0037]** While particular embodiments of the invention have been shown and described, numerous variations or alternate embodiments will occur to those skilled in the art. Accordingly, it is intended that the invention be limited only in terms of the appended claims.